

Remarks/Arguments

In a Final Office Action dated October 1, 2008, claims 12-18, 29-41, 43, 76-82, 92-98 and 101-118 were rejected under § 102 as anticipated by Raman and claims 19, 20, 42, 43, 83, 99 and 100 were rejected under § 103 over Raman in view of Ibrahim. Applicants request reconsideration in view of the remarks below.

Section 102 Rejections

Independent Claims 12, 29, 35, 44, 79 and 92

Claims 12, 29, 35, 44, 79 and 92 were rejected over Raman. Applicants respectfully traverse the rejections.

Claim 12 was rejected based on ¶¶ 71 and 79 of Raman. Claim 12 requires transmitting a write request for half of said multiple blocks of data to said multiple targets. Thus the claim explicitly requires transmitting the write request to multiple targets. Reviewing Fig. 9 of Raman, which ¶ 71 describes, it is clear that A Delta Volume 145 is only connected to A' Delta Volume 147. It is not connected to write to any other volumes. The same is true for B Delta Volume 146 and B' Delta Volume 148. Thus there are not multiple targets to receive the write operation should the condition of step 171 be met. Thus the referenced sections of Raman do not meet this claim requirement.

The Final Office Action responded to this argument merely by noting that Raman discloses multiple targets, A delta volume and B delta volume, citing ¶ 0071. Applicants submit that this is inapposite. Paragraph 0071 is describing Fig. 9. As argued above, review of Fig. 9 shows A delta volume 145 only being mirrored to A' delta volume 147 and B delta volume 146 only being mirrored to B' delta volume 148. No particular block of data is ever mirrored to multiple targets. Each block of data in Raman is only mirrored to a single target. The write requests in Raman for mirroring are simply A delta volume to A' delta volume and B delta volume to B' delta volume. Raman only shows mirroring multiple blocks of data to a single target, though some blocks may go to one target and other blocks may go to another target. Therefore Raman does not show transmitting a

write request to mirror multiple blocks of data to multiple targets as required by the claim.

The transmission step of claim 12 is to be performed if the multiple targets do not satisfy the amount of data to be transferred in said multiple blocks of data, as stated in the preamble. The operations of ¶ 79 of Raman do not determine if the A' or B' Delta Volume can receive the data. The tests of ¶ 79 are merely is the A or B Delta Volume full enough or has enough time passed. If so, the write occurs without checking the target. Thus the write does not occur because the multiple targets do not satisfy the amount of data to be transferred but rather only due to a condition in the initiator. This is a further reason that the referenced sections of Raman do not teach or suggest claim 12 ¶ over Raman is improper and should be withdrawn.

The Final Office Action responded to this argument by indicating the “if” clause is only contained in the preamble and thus accorded no patentable weight. Applicants submit that the “if” must be given patentable weight. The clause is not the purpose of the process or the intended use of a structure. In this case the “if” clause is a condition precedent to even performing the operation of the body of claim 12. The step of the body only gains context for the term “half” if the preamble is considered, as some amount must be halved and that amount is only specified in the “if” clause in the preamble. Therefore the body of the claim is incomplete without the “if” clause. Therefore Applicants submit that the “if” clause cannot be ignored and must be considered. Then the arguments above show that Raman does not meet the claim requirements.

Applicants also note that claims 76 and 92 have the “if” clause in the body of the claims, so the preamble argument of the Final Office Action does not apply to those claims in any event.

As independent claims 29, 35, 44, 76 and 92 have similar write request elements as claim 12, they are allowable for similar reasons. Further, this renders all the claims dependent from those independent claims allowable.

Claims 16, 33, 39, 48, 80 and 96

Claims 16, 33, 39, 48, 80 and 96 were rejected over ¶ 79 of Raman. Applicants respectfully traverse the rejections.

Claim 16 was rejected under exactly the same grounds as claim 12. Therefore, as a first point, claim 16 is allowable for the same reasons as claim 12. As a second point, the relationship between claims 12 and 16 must be considered. Claim 12 requires sending a write request for half of said multiple blocks. Claim 16 requires sending a write request for half of the blocks of said previous write request, thus $\frac{1}{4}$ if the first iteration. There is nothing in ¶ 79 or Fig. 12 to indicate that different criteria would be used in any case, much less if the target did not satisfy the amount of data to be transferred by the immediately previous write request. As mentioned with respect to claim 12, Raman does not have multiple targets and never determines if the multiple targets do not satisfy the amount of data. Raman simply writes the data when sufficiently full or after a given time. With these fundamental items of claim 16 missing and ¶ 79 only indicating one level and not being recursive, the rejection is improper and should be withdrawn

The Final Office Action responded to this argument by pointing to Fig. 12 and indicating that the ends of each path return to points in the middle of the process, to continue until no more data is to be written. Applicants submit that the A connector is not a return path but just a continuation of step 165 and done to fit the flowchart on the single page. The only returns are 1) from step 170, after checking if either the delta set size exceeds a threshold or the time since the last delta set copy exceeds a threshold and both being no, and 2) from step 176, after the delta set copy has completed if either the size or time thresholds have been exceeded. After step 170 there has been no write request. After step 176 all data has been written. Thus neither return path results in a write operation of $\frac{1}{2}$ the prior write request due to a failure of the targets to satisfy the prior write request on a second pass through the flowchart.

Applicants submit that claims 33, 39, 48, 80 and 96 are also allowable, like arguments applying to the claims.

Claims 101, 107 and 113

Claims 101, 102 and 113 have been rejected primarily on ¶¶ 71 and 79 of Raman. Applicants traverse the rejection.

Applicants first note that the arguments for claim 12 relating to Raman lacking multiple targets and not determining if the targets reply that they cannot satisfy the write request apply equally to claim 101, as claim 101 requires multiple targets and determining if the target replies indicate the write request can be accommodated. These reasons are sufficient to render claim 101 allowable.

Claim 101 further requires issuing write requests for the selected number of blocks and write requests for a portion of the selected number of blocks. The Office Action references ¶ 79 for both of these claimed write requests. However, ¶ 79 does not indicate that two different values are used in the fullness test of step 171 and Fig. 12 clearly does not have reissuing of write requests as it never determines that any write request cannot be fulfilled.

The Final Office Action responded to these arguments by assuming the Final Office Action remarks about claim 1 apply and by again referencing ¶ 0079. The Final Office Action thus is erroneous for the reasons stated above, particularly that the “if” conditions cannot be ignored as they are in the body of the claim. Raman never checks to see if any reply to a write request indicates or does not indicate an allowable number of blocks. The only write request would be done in step 174 of Figure 12 and there are no determination or evaluation steps relating to any responses from the secondary data storage system. The evaluation steps 171 and 172 just determine if the block is big enough or enough time has elapsed. No reply from the secondary data storage system is ever even monitored. Therefore there can never be a write request for a portion of the selected number of blocks (the selected number being the DSS value if step 171 or step 172 is passed), contrary to the assertion of the Final Office Action.

Applicants therefore submit that claim 101 is allowable.

As claims 107 and 113 contain similar limitations as claim 101, the arguments apply equally so that claims 107 and 113 are also allowable.

Claims 102, 108 and 114

Claims 102, 108 and 114 have been rejected under ¶¶ 79 and 80 and Fig. 12 of Raman. Applicants respectfully traverse the rejection.

Claim 102 continues after claim 101 and provides for full recursion. As with claim 101, Raman does not teach determining if a number of blocks cannot be accommodated, reducing the block size and transmitting a set of write requests, all requirements of claim 102. Applicants submit that claim 102 is allowable.

As claims 108 and 114 include similar requirements as claim 102, they are equally allowable.

Claims 103, 105, 109, 111, 115 and 117

Claims 103, 105, 109, 111, 115 and 117 were rejected based on ¶¶ 79 and 108. Applicants traverse the rejection.

Paragraph 108 appears to be totally unrelated, simply mentioning an API and a RCP layer which provides selected functions.

Claim 103 requires transmitting an abort write request before transmitting the write request. Paragraph 79 does not mention anything relating to sending an abort write request. Withdrawal of the rejection is requested.

The Final Office Action responds to this argument by indicating Raman discloses an abort write request in ¶¶ 0071, 79 and 108. Applicants cannot find an abort write request in ¶¶ 0071 or 0079. Paragraph 108 only mentions aborted transfers as a function of a high level multicasting layer, which is not relevant to claim 103 and its requirement that the abort write requests are submitted before a smaller portion write request is sent, thus aborting the larger portion write request. Paragraph 108 apparently only relates to individual transfers and their resumption, as common in a TCP/IP environment, not the complete aborting of a write request as in claim 103. Thus paragraph 108 is not relevant to claim 103.

As claims 105, 109, 111, 115 and 117 contain similar limitations as claim 103, the arguments apply equally so that claims 107 and 113 are also allowable.

Conclusion

Based on the above remarks Applicants respectfully submit that all of the present claims are allowable. Reconsideration is respectfully requested.

Respectfully submitted,

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